REMARKS

Claim 1 has been amended to avoid the objection raised by the Examiner under 35 U.S.C. §112, second paragraph. The word "substantially" has been deleted from the claim.

Claims 2 and 3 have been cancelled.

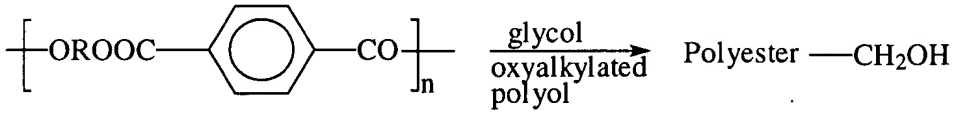
Claims 1, 4 and 16 have been amended to render the rejection under 35 U.S.C. §103(a) moot. Therefore, reexamination and reconsideration of the application as amended are respectfully requested.

THE REJECTION UNDER 35 U.S.C. §103(a)

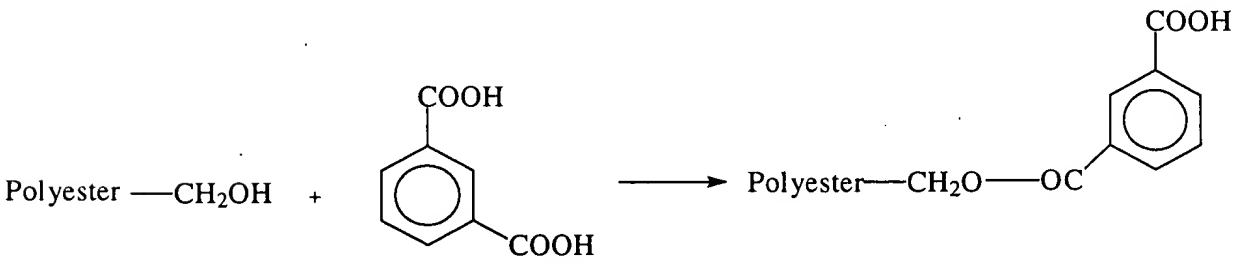
The rejection of claims 1-20 under 35 U.S.C. §103(a) as being unpatentable over WO 97/19161 in view of Salsman US 4,977,191 is respectfully traversed. The amendment of claims 1, 4 and 16 overcomes the above rejection. Although WO 97/19161 discloses the copolymers of polyoxyethyleneglycol and polyethylene terephthalate, as well as polymers of difunctional acid and cycloalkylene polyglycols that may be used to coat enzyme granules, it does not specifically teach coating enzyme granules with the water-soluble or water-dispersible polyester resin

of the present invention, which comprises the reaction product of waste terephthalate, glycol, oxyalkyated polyol, isophthalic acid and either trimellitic acid or trimellitic anhydride. The polymers of the instant invention are (1) derived from waste terephthalate polymers and the polymers are further acid functionalized with end-acid groups. None of the terephthalate polymers of WO 97/19161 are acid functionalized.

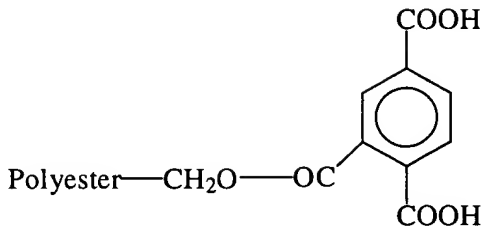
The water soluble or water dispersible resins of the present invention and suitable for coating enzyme granules are made as shown in the following scheme:



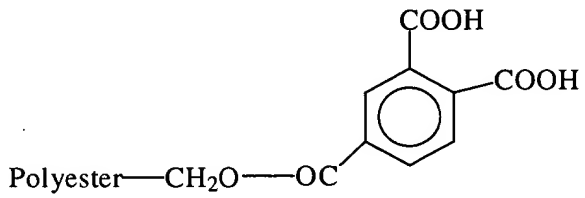
Waste terephthalate polymer



In the case of trimellitic acid, the resulting resin will have two carboxyl moieties as shown below:



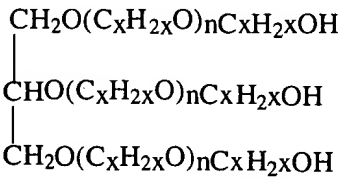
Another possible structure for the trimellitic derivative would be as follows:



The trimellitic derivatives are basically isomers and for purposes of the present discussion both are present when the polyester resins are modified with the polycarboxylic acid or derivative thereof.

The carboxyl function in the resulting polymers provide the necessary moiety for solubility in water when the polymer is neutralized with a suitable alkaline material. See Examples.

The polyester material produced in the step of glycolysis with further reaction with an oxyalkylated polyol now has incorporated into the polyester prepolymer resin a moiety designated by the following structure (shown for glycerol for example):



wherein x is an integer from 2-4 and n is 5-30. When the oxyalkylated polyol is incorporated into the polyester by transesterification, the resulting prepolymer is now a copolyester which incorporates glycol moieties and oxyalkylated polyol moieties. *It should be noted that the addition of the oxyalkylated polyol during the initial glycolysis and further transesterification provides to the resulting resin additional*

hydrophilic character and less crystallinity and accordingly the polymers is less likely to precipitate or plate out from solution. An additional feature which the oxyalkylated polyol imparts to the resulting resins is solubility and dispersibility characteristics which can be "taylor-made" depending on the number of oxyalkylated moieties that are incorporated into the polymer structure.

The advantageous water solubility and dispersibility properties of the new resins of the present invention are derived from both the oxyalkylated and carboxylated moieties. In analogy with the chemistry of surfactants, it is well known that surfactants with poor hydrophilic and lipohilic balances (HLB) show little dispersibility in water. *The lack of oxyalkylated moieties in the carboxylated resins of the prior art typically leads to no dispersibility, poor dispersions, or milky dispersions which may be translucent. However, when oxyalkylated moieties are introduced into the polyesters of the present invention the resins when mixed with water will go from translucent to clear or to totally clear solutions.* Because the oxyalkyl group may vary from 2-4 carbons the number of hydrophilic and hydrophobic groups can be manipulated at will to "taylor-make" products with specific properties.

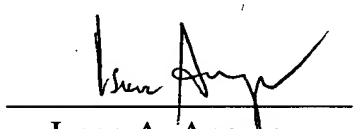
The compositions derived from processing waste polyester provides a means to recycle polyester materials which are not readily biodegradable and which typically occupy large amounts of garbage landfills. By reprocessing the waste polyester into water soluble and water dispersible resins to coat enzyme granules applicant has solved two environmental problems at the same time: The first problem solved is that the waste polyesters are not biodegradable and therefore it is novel to recycle them into the instant resins of the present invention and second because they are readily water soluble and water dispersible there is no need for organic solvents which typically provide unacceptable pollution.

Therefore the combination of WO 97/19161 with Salsman US 4,977,191 does not render the claimed invention obvious.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned **"Version with markings to show changes made."**

In view of the above amendments and remarks, the application is now considered to be in condition for allowance, and the Examiner is respectfully requested to withdraw the rejections. An early notice of allowance is earnestly solicited.

Respectfully submitted,



Isaac A. Angres
Reg. 29,765

Filed: October 9, 2001
2001 Jefferson Davis Highway- Suite 301
Arlington, VA 22202
Tel 703-418-2777
SYC28C1A

Application No. 09/549,647

VERSIONS WITH MARKINGS TO SHOW CHANGES MADE

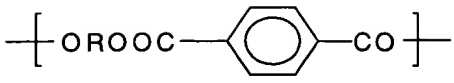
-- IN THE CLAIMS --

1. (Amended) An enzyme-containing granule comprising:

(b) a core granule comprising one or more enzyme particles; and

a water-soluble polymer coating therefor which ~~substantially~~ completely encapsulates said enzyme particles, said polymer coating comprising a water-soluble or water-dispersible polyester resin, which comprises a reaction product of 20%-50% by weight of waste terephthalate polymer, 10-40% by weight of at least one glycol, ~~and~~ 5-25% by weight of at least one oxyalkylated polyol, 20-50% by weight of isophthalic acid and 3-15% by weight of trimellitic acid or trimellitic anhydride.

4. (Amended) A granule of claim 1, wherein the water-soluble or water-dispersible polyester resin comprises the reaction product of waste terephthalate of the unit formula



wherein R is the residue of an aliphatic or cycloaliphatic glycol of 2-10 carbons or of an oxygenated glycol of the formula $HO(C_xH_{2x}O)_nC_xH_{2x}OH$,wherein x is an integer from 2-4 and n is 1-10 20-50% by weight of isophthalic acid and 3-15% by weight of trimellitic acid or trimellitic anhydride.

16. (Amended) A process for producing encapsulated enzyme-containing granule as claimed in claim 1, comprising:

(a) selecting a core enzyme; and

(b) contacting a granule of core enzyme with at least one water-soluble or water dispersible polyester resin, which comprises a reaction product of 20%-50% by weight of waste terephthalate polymer, 10-40% by weight of at least one glycol, ~~and~~ 5-25% by weight of at least one oxyalkylated polyol; 20-50% by weight of isophthalic acid and 3-15% by weight of trimellitic acid or trimellitic anhydride, and removing any excess water by drying until a continuous film of solid polyester resin is formed around the granule core.